EDUCATING PALLIATIVE CARE STAFF INCREASES UTILIZATION OF MINDFULNESS BASED COGNITIVE THERAPY TO MANAGE DEPRESSION IN PALLIATIVE CARE PATIENTS WITH CHRONIC PAIN

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by *Christopher Michael Harper*, titled *Educating Palliative Care Staff Increases Utilization of Mindfulness Based Cognitive Therapy to Manage Depression in Palliative Care Patients with Chronic Pain* and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP project is contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

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ABSTRACT

Patients under palliative care commonly experience a multitude of conditions that contribute to the development of chronic pain and depression. These patients are also commonly prescribed opioid analgesic medications to promote palliation and comfort. Higher rates of underlying depression among patients with chronic pain has been shown to increase risks for self-medicating and inappropriate use of prescribed opioids. Inappropriate use of opioids poses serious concerns for patients' health, and also presents a significant burden on the US healthcare system. Mindfulness-based cognitive therapy (MBCT) has been demonstrated to be a potentially useful non-pharmacological method for addressing depressive symptoms without common side effects seen in traditional antidepressant therapy. The purpose for this project was to educate palliative care staff members, including providers, nurses and social workers, concerning the benefits of using MBCT for addressing depression among patients with chronic pain, while also potentially improving upon patients' adherence to taking opioids as prescribed. A pretest survey was distributed to participants to gain insight into their beliefs and understanding concerning the use of MBCT in the treatment of depression. Following the completion of the pretest, an educational webinar was distributed to participants which was then be followed by a posttest survey containing the same questions as the pretest survey. All participation was voluntary, and the identity of all participants will remain anonymous to promote confidentiality throughout the project. There were a total of 25 participants for this project with six unique pretest/posttest responses collected and analyzed accordingly which showed significant improvement in each category which thus supports the merit of educating palliative care staff regarding the use of MBCT for patients which chronic pain and depression who are under palliative care.

INTRODUCTION

To address underlying depression, the Centers for Disease Control and Prevention (CDC) has recommended the use of adjunct therapies in their updated opioid guidelines, which includes the use of non-pharmacological therapies that have demonstrated efficacy in treating both underlying chronic pain, as well as limiting psychological contributors to pain, including depression (CDC, 2016). Recently, former Surgeon General, Dr. Vivek Murthy, echoed these sentiments and emphasized the need for educating healthcare providers on the availability and benefits of using alternative treatments to opioid-based therapies (Murthy, 2016). One such alternative therapy for addressing chronic pain is mindfulness-based cognitive therapy (MBCT), which has been shown to be helpful for treating depression which is commonly seen among patients suffering from chronic pain. MBCT is unique form of cognitive-behavioral therapy that uses meditative practices that emphasizes minimizing negative thoughts as a means to increase the participant's mindfulness which can translate into improvements in psychological and physical wellbeing (Parsons, Crane, Parsons, Fjorback, & Kuyken, 2017). While traditionally performed in a classroom milieu, MBCT has also been adapted for use in home-based settings with prerecorded sessions that can be accessed at the convenience of the participant (Parsons, Crane, Parsons, Fjorback, & Kuyken, 2017). This project will focus on educating healthcare professionals about the benefits of using MBCT as a viable complementary therapy for palliative care patients with chronic pain who have underlying depression.

Background and Significance

Management of chronic pain, as defined as recurrent or persistent pain lasting at least 12 weeks, poses a number of significant challenges for palliative care staff (Healthline, 2017). To

begin illustrating these concerns, it is important for staff to understand that etiological sources for chronic pain may include acute trauma, chronic disease processes, malignancies, infections, surgical complications or even psychogenic origins (Healthline, 2017). This then may translate into some forms of chronic pain being nociceptive pain (which includes somatic and visceral pain) neuropathic pain (for example diabetic neuropathy), pain with no clear pathway (such as non-specific lower back pain) or a combination of differing types of underlying pain. Furthermore, previously enacted protocols to alleviate chronic pain resulted in the overprescribing of opioid analgesics which have shown limited efficacy while posing severe consequences for patients. Between 2000 and 2016 prescribing of opioids increased fourfold and of the resulting 600,000 drug-related fatalities during this respective timeframe, roughly two-thirds involved an opioid (CDC, 2017). The rise in prescription opioids ironically has not resulted in improvements in overall pain reported by Americans (CDC, 2017).

Another concerning aspect related to chronic pain treatment lies in the associated costs, which includes lost productivity and healthcare-related needs, that has been estimated in the United States to amount to between $560 to $635 billion dollars (Gaskin, 2012). This staggering figure makes the economic burden associated with treating chronic pain more costly than that of treating heart disease, diabetes or cancer (Gaskin, 2012). Chronic pain is also a commonly encountered medical condition in America. It is believed that over 25 million Americans suffer from some form of chronic pain, and individuals with chronic pain have consistently demonstrated poor health statuses when compared to individuals without chronic pain (National Institutes of Health, 2015).

In addition to the risks that opioids pose for patients with chronic pain, depression is a common comorbidity that poses serious risks to patients' phychological and physical health, and this will be the focal point for this proposal. For the purpose of this paper, depression will be used interchangeably with major depressive disorder (MDD) as defined as having persistent correlated signs and symptoms lasting at least two weeks such as sadness, emptiness, hopelessness, pessimism, fatigue, lack of energy, sleep disturbances, physical ailments such as aches and pains with no physical cause, impaired decision making and or loss of interest or pleasure in activities previously found to be engaging or pleasurable (National Institute of Mental Health, 2018).

Evidence to Support MBCT for Depression Treatment

In a recent meta-analysis of 115 unique randomized controlled trials (RCTs), which included a total of 8,683 participants that utilized either MBCT or mindfulness-based stress reduction therapies versus treatment as usual, MCBT was consistently demonstrated to statistically improve depressive symptoms in patients with chronic pain (Gotnik et al., 2015). In a similar fashion, a meta-analysis with systematic review conducted by Hilton et al. (2017) was comprised of 38 different RCTs, with study sizes ranging between 19 to 342 individuals, focused on the efficacy of mindfulness meditation in patients with chronic pain for pain control and depressive symptoms. This comprehensive review concluded that mindfulness meditation demonstrated a small improvement in overall pain control but more importantly, a statistically significant improvement in depression symptoms which translates into improved quality of life for paitents with chronic pain and depression (Hilton et al., 2017). Additionally, patients who have a dual diagnosis of depression and chronic pain who underwent MBCT reported a decrease

in depression symptoms and which coincided with a decrease in perceived pain burden (Gotnik et al., 2015). This paper will demonstrate the need to educate healthcare professionals regarding MBCT, which can serve as a means of feasibly and effectively addressing underlying depression in patients with a concurrent diagnosis of chronic pain. Furthermore, research has shown that depression is a risk factor for abusing and or misusing opioids and, therefore, managing depression may lead to reducing the risk for overreliance on opioid analgesic therapies and improving patients' safety in the process (Grattan, Sullivan, Saunders, Campbell, & Von Korff, 2012).

Depression Statistics and Treatment Considerations

Palliative care involves the alleviation of suffering with a strong emphasis of improving the quality of life for patients versus curative measures. Patients receiving palliative care have a myriad of life-limiting diseases which increases vulnerability to depression and chronic pain. MDD continues to be one of the most commonly encountered mental health diseases and carries the highest measure of disability among sufferers when compared to the entirety of mental health disorders (National Institute of Mental Health, 2016). The likelihood of suffering from depression goes up substantially when chronic pain is involved. While difficult to accurately quantify, current medical literature estimates that MDD among patients with chronic pain may be anywhere from 18% in less severe cases of chronic pain to as high as 85% in patients being seen at specialized pain treatment centers (Jong et al., 2017). Traditional therapies for depression often involve the use of psychotropic medications including, selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), norepinephrine reuptake inhibitors (NRIs), tricyclic antidepressants (TCAs) and to a lesser extent, monoamine

oxidase inhibitors (MAOIs). However, significant drawbacks can accompany these traditional therapies including weight gain, sexual dysfunctions, nausea, dry mouth, urinary retention, blurred vision, constipation, relatively long therapeutic onset times and in some cases, costs are also a concern (Santarsieri & Schwartz, 2015). Collectively this can lead to significant compromises in patients' quality of life and which contributes to relatively high discontinuation rates which have been estimated to vary between 16% to 33% depending on the specific treatment and ages of individuals involved (Santarsieri & Schwartz, 2015).

MBCT has advantages of being cost-effective and successful for treating depression without the underlying concerns that typical antidepressant therapies possess. A recent research study found that MBCT was just as efficacious as Zoloft in minimizing relapses of MDD when used as a first line therapy for depression, with the added benefits of mitigating the severity of depressive symptoms and also supporting self-care coping techniques to assist patients in managing their depression (Eisendrath et al., 2015). Another study involving a RCT compared routine antidepressant therapy versus MBCT and found similar results between both approaches in terms of preventing depression relapses (Kuyken et al., 2015). In terms of quantifying benefits, MBCT has been found to reduce the severity of depressive symptoms by 65-67% in patients with MDD who were identified as at a high risk for relapses in depressive episodes (Lilja, Zelleroth, Axberg, & Norlander, 2016). Given the fact that patients on palliative care have serious and life-limiting diseases, MBCT should be considered as an adjunct therapy for addressing depression in patients with chronic pain given the effectiveness at managing depressive symptoms without posing concerns that traditional pharmacological approaches to care may present.

Needs Assessment

The promotion of a safe and effective means for alleviating underlying depressive symptoms in patients who have chronic pain is imperative. To better put this into perspective, a needs assessment of the project implementation site was conducted to clearly identify current limitations in this healthcare practice and to demonstrate evidence-based literature to support the need for addressing depression among their patients with chronic pain who are under palliative care. The identification of concerns are as follows:

- Depression screening protocols for palliative care patients with chronic pain does not exist despite research findings supporting depression screening in this population.
    - Studies of patients on palliative care diagnosed with chronic pain show a significant association between perceived pain and psychiatric morbidity of underlying depression (Rajmohan & Kumar, 2013).
    - A recent study featuring patients who were receiving long-term opioid therapy showed that individuals with moderate to severe depression were 1.8 times and 2.4 times more likely to abuse prescription opioids, versus patients without depression undergoing similar opioid therapies (Grattan, Sullivan, Saunders, Campbell, & Von Korff, 2012).
    - This same study demonstrated that patients with mild, moderate and severe depression specifically admitted to misusing opioids by self-increasing doses at rates of 1.9 times, 2.9 times and 3.1 times respectively (Grattan, Sullivan, Saunders, Campbell, & Von Korff, 2012). Even more alarming was the fact that all participants in this study had no past history of substance abuse or misuse.

- Palliative care patients are at higher risk for depression and often have chronic pain concerns which increases risks for opioid misuse and or abuse.
    - Patients under palliative care are especially at risk for painful medical procedures associated with their underlying diseases, and therefore, there are inherent risks associated with opioid use in this specific patient population. Furthermore, given the fact that a high percentage of patients receiving palliative care have underlying pathologies (such as arthritis, metastatic cancers, diabetes etc.) that can directly illicit chronic pain, this poses a clear risk for both depression and misuse and or abuse of prescribed opioids.
    - Depression rates for patients on palliative care with chronic pain are higher than patients who have chronic pain but are not on palliative care**.** Research has also found a strong correlation betweeen depression among patients with chronic pain, with estimates stating an approximate 55% occurrence that is likely underreported (Merlin, Childers, & Arnold, 2013).
    - Patients on palliative care with chronic pain show higher risks for having a co-diagnosis of depression. In patients who have chronic pain and are on palliative care, the incidence of depression rises to an estimated 67% with this estimate again likely to be an underrepresentation of the true prevalence of depression among affected individuals (Rajmohan & Kumar, 2013).

Specific Project Goals

Goals of the project given underlying risks of the problem as identified by the needs assessment are as follows:

- Educate palliative care staff, including clinicians, nurses and social workers about the clinical practice guideline (CPG) recommendations as outlined by the CDC to address chronic pain among palliative care populations.
    - Studies analyzing factors that lead to the uptake of non-pharmacological treatment options illustrated the benefits of mindfulness-based therapies in patients with chronic pain and highlighted that healthcare staff and provider education was a key component for incorporating alternative therapies into actual practice (Becker et al., 2017).
    - Highlight benefits of using MBCT to promote pain control and minimize risk for patients. Literature has found MBCT has the dual benefit of providing statistically significant improvements in depressive symptoms with the added benefit of reducing the burden of chronic pain perceived by patients who underwent MBCT (Hilton et al., 2017). Additionally, a recent meta-analysis showed that MBCT was effective at treating depression without significant side effects generally seen with pharmaceutical antidepressant therapies (Kuyken et al., 2016).
    - Inform staff that MBCT is both effective in and cost-effective in preventing depression relapses. MBCT has demonstrated similar efficacy to traditional antidepressant medication therapy while having decreased associated side effects and minimal associated costs with implementing such therapies (Kuyken et al., 2015).
    - Elucidate upon research that informs that MBCT has been found to somewhat minimize chronic pain intensity while having significantly positive effects on

treating underlying depression present in patients with chronic pain. CBTs, which includes MBCT, were acknowledged by the CDC as having a positive impact on both addressing underlying chronic pain, as well as limiting psychological distress, including depression (CDC, 2016).

- MBCT supports self-care patient participation in addressing chronic pain and has been found to improve physical limitations in a safe and effective manner. Cognitive-based therapies, to include MBCT, have the advantage of encouraging active patient participation in their plan of care and can contribute to sustained improvements in overall pain and improved physical functioning without apparent risks (CDC, 2016).
- MBCT has been found to have similar effectiveness at managing depression when compared to traditional pharmacological antidepressant therapies without unwanted side effects. Traditional depression management, as outlined previously, may pose significant risks to patients' quality of life as opposed to MBCT, that has been found to have similar effectiveness without the risks associated with pharmacological treatments used for depression (Kuyken et al., 2015).

Purpose, Aims and Rationale for Recommendations

The purpose of this proposal is to inform palliative care team members about the benefits of using MBCT to reduce symptoms of depression in patients on palliative care who have a diagnosis of chronic pain. The aim of the study is to enhance palliative care staffs' knowledge regarding the use of MBCT for treating depression in palliative care patients who have chronic

pain. Also given that there is a nationwide push to decrease opioid prescribing citing the safety concerns associated with this practice, it is logical to conclude that palliative care populations are at high risk for not following opioid treatments as they are written. Therefore, in addition to addressing opioid abuse and or misuse, another primary objective would be to improve upon patient adherence to taking opioids as prescribed and avoiding overuse. Enhancing education about the benefits of MBCT for managing depression symptoms would serve to reduce the risks for opioid misuse and or abuse in palliative care patients with chronic pain concerns.

The proposed agency and setting for this proposal is a large non-for-profit organization that specializes in hospice and palliative care approaches for both pediatric and adult patient populations. Stakeholders integral to this effort would be clinicians, nursing staff, social workers, clinical managers, patients, patient family members and society. Nursing leaders who have experience in executing evidence-based quality improvement undertakings, could serve as champions and could assist with scrutinizing current policy regarding identifying and treating underlying depression and comparing these with the CDC's CPG recommendations. To accomplish this task a performance gap analysis may be helpful in determining this degree of disparity while identify key areas needing to be addressed for the adoption of the CDC's CPG (Graham, 2011). This information could then assist in a plan of action for educating palliative care professionals about the consideration of using MBCT as an adjunct therapy for the treatment of depression among palliative care patients.

Theoretical Framework

Modern healthcare agencies are complex and adaptive entities that must undergo constant evolution and restructuring necessary to maintain viability within the greater healthcare system.

This requires agencies to adopt practices and cultures that are conducive towards innovative and new initiatives that will drive optimal clinical outcomes. Lewin's Change Theory illustrates this in a three-step fashion that outlines how new ideas materialize from beliefs into actual practice. The first step involves unfreezing which is highlighted by creating awareness that an actual problem exists and driving the understanding that current practices and beliefs need to change to rectify this problem (Wojciechowski, Pearsall, Murphy, & French, 2016). This has been accomplished by sharing research with the lead medical director that informs about the issue that patients with chronic pain have high rates of underlying depression, and more importantly, this level of depression may be more common among patients under palliative care which demonstrates the need for translating research into practice (Rajmohan & Kumar, 2013).

The second step in Lewin's model involves changing current processes and demonstrating how alternative practices will have beneficial outcomes. This will involve educating about the use of MBCT and discussing specific tangible benefits of reducing depressive symptoms. Furthermore, information regarding the cost-effectiveness of MBCT to implement with added advantages over traditional antidepressant pharmacological therapies in terms of therapeutic onset and lack of serious side effects will be discussed (Kuyken et al., 2015). Additionally, patients with chronic pain who undergo MBCT will learn positive coping skills and self-care techniques that can help limit negative coping which can potentially manifest in patients overcoming barriers present for not following opioid medication regimens and limit misusing or abusing opioid prescriptions in the process.

The last step involves refreezing that promotes the integration of the new change into practice, while simultaneously limiting regressive behaviors towards antiquated practices and

restraining further unwanted changes (Wojciechowski, Pearsall, Murphy, & French, 2016). This step would be accomplished should the agency use the information gained from the quality improvement initiative to enact the CDC's CPG recommendations for addressing opioid abuse and misuse among all patient populations and this supports the use of cognitive behavioral therapies which include MBCT (CDC, 2016).

Lewin's change theory also outlines three distinct forces that must be taken into account, including driving forces, inhibiting forces and equilibrium (Petiprin, 2016). For this proposal, one driving force would include staff that understand the detriments associated with the current opioid crisis and who identify with the need for current palliative care practices to change to address this problem. Additional driving could also include potentially limiting rehospitalization of patients under palliative care for pain exacerbations as MBCT has been shown to reduce both depressive symptoms and the overall perceived pain burden in patients with depression and chronic pain (Hilton et al., 2017). Inhibiting forces could entail several components including time and efforts involved with implementing the use of MBCT for palliative care patients with chronic pain and depression, staff that may have doubts regarding the efficacy of MBCT for treating depression and potential lack of adherence of MBCT practices by patients. The last force of equilibrium is achieved when inhibiting and driving forces are in balance and keep each other in check.

Quality Improvement Model Selection

In order to impart meaningful quality improvement efforts based upon current evidenced-based practice (EBP), it is important to use a model that will guide how to identify shortcomings with current practice for a given healthcare setting, formulate a plan for bridging the gaps

between current practice and utilize EBP identified as beneficial for improving on existing processes. This writer contends that in order to address depression among patients on palliative care who have a concurrent diagnosis of chronic pain, providing education regarding this concern with be key. The hope is that utilizing MBCT can safely and effectively manage underlying depression which will reduce the overreliance on opioid analgesics and thus decrease opioid abuse and misuse among this population. To implement this change in clinical practice, the Advancing Clinical Practice through close Collaboration (ARCC) model will be used as the framework that will serve to identify potential barriers to the change, as well as lay the foundation for the implementation process. The ARCC model has been found to be highly effective at improving organizational culture and staff beliefs regarding the merits of EBP while also fostering the adoption of EBP recommendations via an organized systematic process (Melnyk, Fineout-Overholt, Giggleman, & Choy, 2017).

The starting point in the ARCC model is to first identify and clearly define the problem. This has been accomplished through correspondence with the medical director of the target site regarding pain management modalities, showing that MBCT is not being utilized to address depression in palliative care patients with chronic pain. After the specific problem has been defined, it is imperative to assess the feasibility of implementing the change, as well as identifying potential barriers and inhibiting forces to implementing the change. This can include lack of sufficient EBP beliefs, inadequate facilitators to initiate the project and lack of involvement from potential participants. Conversely, elucidating on the strengths of implementing the project can become the driving forces that propel the project forward and promote a positive paradigm shift towards staff engagement in this educational quality

improvement initiative. One strength is that the agency has a strong culture of EBP knowledge and skillset, as well as stakeholders who are committed to implementing EBP in clinical practice to provide the best possible patient care. Therefore, the agency is invested in pursuing staff education regarding practices that will improve staff awareness of evidence-based depression management in patients with chronic pain. After assessing the strengths and weaknesses within the agency and of the tentative QI initiative, modifications can be made that will foster a smooth transition. For instance, if the agency has a strong EBP culture, but lack sufficient facilitators, the presenter can make arrangements to establish buy-in of key stakeholders prior to implementing the project.

After the inhibiting forces have been rectified and the strengths have been promoted, the agency can cultivate a culture that will embrace the quality improvement initiative, which can be accomplished by engaging staff in EBP education regarding MBCT. One method that will serve to promote staff participation in the project is to highlight key benefits of MBCT specific to the agency's patient population of individuals under palliative care. Once buy-in of the of the project is completed by stakeholders, increased participation of staff and providers should be observed (Melnyk & Fineout-Overholt, 2010). This writer postulates that the previous recommendations for the chosen project site will be instrumental for future practice but will not actually be enacted for this project.

PICO Statement

Given the scope of the area of interest for this proposed undertaking, the following study question was formulated: "In palliative care staff working with patients who have chronic pain, does educating team members about the of using MBCT for treating depression versus not

educating about the use of MBCT to treat depression, result in increased intent for palliative care staff to incorporate MBCT for treating depression among patients with chronic pain?"

Methods for Finding Relevant Research

The task of finding relevant literature pertaining to the use of MBCT for patients with chronic pain and depression was achieved through literature reviews in the CINAHL database utilizing specific search criteria. In the CINAHL database, the search terms "chronic pain" and "mindfulness" were selected, and the accompanying search was then limited to full text sources in English, generated in the last seven years by checking the appropriate fields on the left-hand side under the "refine results" tab with 135 articles then listed accordingly with six unique studies then selected. In a similar fashion, a search was conducted in the CINAHL database using search terms "mindfulness based cognitive therapy" and "depressive" limited to full text articles in English generated in the last seven years with 38 results of which four studies were then selected that met criteria for inclusion. Finally, the search terms "MBCT" and "depression" were used and in also limited to full text sources in English generated in the last seven years with 51 results populated and two articles were selected accordingly. The selected articles consisted of the following types of studies: one systematic review, one meta-analysis, two systematic reviews with meta-analysis, five randomized controlled trials (RCTs), one quasi-experimental study, one qualitative grounded theory study and one quality improvement project (Appendix A). The rationale for inclusion was based upon the ability to apply knowledge gained from each study into the prospect for specifically addressing depression among patients with chronic pain.

Synthesis of Current Evidence in Literature

After carefully analyzing the collective data, several key themes were derived regarding MBCT and the treatment of depression that collectively described study findings. The target audience in question for this quality improvement proposal primary revolves around patients in outpatient settings, and the vast majority of selected studies were also based upon outpatient populations to ensure appropriateness of findings for this project. The studies selected showed that most patients underwent MBCT training under the supervision of trained MBCT educators with sessions consisting of small groups of participants usually around 10 individuals.

MBCT is well-tolerated and safe with no significant safety concerns identified during any of the studies included (Aalderen et al., 2012; Zgierska et al., 2016). Specifically, MBCT was identified as having excellent safety for both treatment of chronic pain and depression while demonstrating fewer side effects when compared to normal antidepressant pharmacological interventions (Huijbers, Spinhoven, Van Schaik, Nolen, & Speckens, 2016; Lilja, Zelleroth, Axberg, & Norlander, 2016; Mehl-Madrona, Mainguy, & Plummer, 2016). Furthermore, MBCT has the added benefit over traditional treatment as usual (TAU), using pharmacological antidepressant therapy, in the ability to teach participants positive, self-directed coping techniques that can be utilized to further bolster effectiveness for mitigating depressive symptoms, while also potentially limiting the risks for substance abuse and misuse (Barrett & Chang, 2016; Lestoquoy et al., 2017). Mindfulness-based therapies assist with directly lowering numerous depressive symptoms, negative perceptions related to pain and anxiety and help enhance overall pain control and quality of life (QOL) metrics (Hilton et al., 2017; Kuyken et al., 2015; Lenz, Hall, & Smith, 2016; Lilja, Zelleroth, Axberg, & Norlander, 2016; Mehl-Madrona,

Mainguy, & Plummer, 2016; Mikolasek, Berg, Witt, & Barth, 2018; Shawyer, Enticott, Ozmen, Inder, & Meadows, 2016). MBCT when used in a complementary fashion to TAU has the added benefit of further controlling depressive symptoms and improving QOL while allowing individuals freedom of when and how to utilize mindfulness-based exercises that meets their unique lifestyles and choice of treatments (Aalderen et al., 2012; Hilton et al., 2017; Huijbers, Spinhoven, Van Schaik, Nolen, & Speckens, 2016; Mehl-Madrona, Mainguy, & Plummer, 2016). While MBCT is promising as a potential treatment option for depressive symptoms, several of the studies involved a limited number of participants, with three of the 12 studies having less than 50 individuals, meaning that extrapolating data could be somewhat misleading given the relatively small sample sizes involved in these studies (Lestoquoy et al., 2017; Lilja, Zelleroth, Axberg, & Norlander, 2016; Zgierska et al., 2016). Furthermore, patients who undergo MBCT may have the additional advantage of fostering positive self-care skills that can prove significantly beneficial for patients with chronic pain who are at risk for abusing and misusing opioids. In summary, the available literature suggests that MBCT is generally safe, well-tolerated and effective at mitigating depressive symptoms, improving QOL indicators and enhancing pain control as an added benefit, when used either as a first line or adjunct therapy, without negative side effects commonly seen with traditional pharmacological antidepressant approaches.

METHODS

Design

The structure selected for this project was a quality improvement design utilizing a pretest and posttest survey using a modified five-point Likert scale. The goal is to determine whether, following the educational session, there is an increase in palliative care team members'

understanding of benefits and basic principles associated with utilization of MBCT in the treatment of depression, knowledge of benefits for reducing depressive episodes in patients diagnosed with chronic pain, awareness of tangible benefits that MBCT holds over traditional antidepressant therapies using medications, viability for using MBCT as an adjunct therapy for the treatment of depression and the provider's comfort in actually recommending MBCT for patients with chronic pain and depression, in palliative care (Appendix B). This quality improvement initiative was non-randomized due to randomization not being feasible or beneficial for the focus of the project (Toulany, McQuillan, Thull-Freedman, & Margolis, 2013).

Sample

The specific team members offered the opportunity to participate in this project included Doctors of Medicine, nurse practitioners and Doctors of Osteopathic Medicine, registered nurses and social workers who specialize and currently work in palliative care practice.

Description of the Educational Session

Key areas highlighted during this presentation included the following points: a) the increased propensity of patients with chronic pain to have underlying depression, which has been shown to be exaggerated in patients who are on palliative care; b) significant risks for opioid abuse and misuse among patients diagnosed with chronic pain and depression; c) detriments associated with opioid abuse and misuse including risks for subsequent hospitalization, associated morbidity, mortality and higher healthcare costs; d) benefits of using MBCT for decreasing depressive symptoms, positive alteration in perceptions and acceptance of pain, improved QOL metrics and beneficial self-care coping skills and e) advantages of using MBCT both in terms of efficacy and limited side effects when compared to traditional pharmaceutical

antidepressants in the treatment of depression in adult populations (Aalderen et al. 2012; Barrett & Chang, 2016; CDC, 2017; Rajmohan & Kumar, 2013; Santarsieri & Schwartz, 2015). Upon completion of the education being given to staff, a posttest survey using the same five-point Likert scale questions was disseminated and the results analyzed to determine if staff knowledge and comfort level regarding recommending MBCT therapies had increased.

Setting

The site chosen for this project is a large hospice and palliative care organization that serves the greater Phoenix metropolitan areas. This location was specifically chosen as the focus centers around patients with advanced disease processes and goals of care are aligned with improving QOL. Approval from the site was obtained as required (Appendix C), as well as from the University of Arizona (Appendix D). Many of the patients under the care of this agency have underlying pathologies or undergo procedures that commonly manifest in chronic pain. Therefore, it is common to have patients who receive long-term opioid analgesic therapies while under palliative care. Given the high degree of chronic pain in conjunction with opioid prescribing, patients on service for palliative care at particularly high risk for depression and subsequent increased likelihood for opioid abuse and misuse (Grattan, Sullivan, Saunders, Campbell, & Von Korff, 2012; Rajmohan & Kumar, 2013).

Resources

Resources required include the materials to make and disseminate pretest and posttest surveys, which will be accomplished by using Qualtrics which is an online company that uses software as a service for creating, distributing and analyzing surveys that can be sent via email

addresses for the target audience. Additionally, the educational presentation which was created via PowerPoint was recorded through Panopto for easy viewing by participants (Appendix E).

Data Collection and Analysis

Following completion of the pretest survey, this writer provided an educational session, lasting approximately 30 minutes, that educated the staff about tangible benefits of utilizing MBCT in the treatment of depression in patients with chronic pain who are being treated under palliative care. In this way, the independent variable will be the educational webinar with the results of the pretest and posttest surveys serving as the dependent variables. Incomplete survey questions were omitted with only completed surveys sections being used as data points for this project. The survey answers corresponded with specific numerical values with *strongly disagree* representing the lowest score of '1' and *strongly agree* having the highest numerical value of '5.'

After the pertinent data from the surveys was collected, this writer transferred the values into the SPSS program to analyze data in addition to the Qualtrics data analysis tools. The data collected from the pretest and posttest surveys was then analyzed by performing a paired t-test to assess for changes in the mean values for each of the six questions that the staff members will answer. Paired t-tests are commonly used to compare mean values for two separate groups; for this project the two unique groups were identified as staff responses prior to receiving the educational information regarding MBCT for the treatment of depression and staff responses after being given the required educational information (Kim, 2015). Higher median values attained posttest represent a positive response to the intervention of the education material provided and higher scores can also be interpreted as a previous knowledge deficit regarding

palliative care staff member's understanding, acceptance and willingness to utilize MBCT in the treatment of depression for patients under palliative care.

Budget

Resources required included the materials to make and disseminate pretest and posttest surveys and refreshments and food provided for the meeting with the overall budget required for this project being under $100.

Ethical Considerations

Ethical considerations for this project related to *respect for persons*, *beneficence* and *justice*.

Respect for Persons

Respect for persons involved in this project which entailed working in a collaborative and supportive role for educating healthcare workers who were the participants for this project tasked with providing care to the area of interest of this project, which focuses on palliative care patients with chronic pain and depression (Polit & Beck, 2017).

Beneficence

Beneficence involves providing the least amount of harm possible, balanced with the highest degree of benefit for all participants involved in research (Polit & Beck, 2017). Given that this project did not include direct patient research, there was no discernible risks for harm to participants.

Justice

Justice was upheld by keeping all participants anonymous and allow for voluntary involvement in the project (Polit & Beck, 2017). This ensured fair treatment for all healthcare professionals who will engaged in this project.

RESULTS

Data Results and Interpretation

Following the completion of the aforementioned pretest, educational presentation and posttest, the corresponding data was acquired and analyzed using both Qualtrics and SPSS software. Qualtrics analyzed data individually for the pretest and posttest. SPSS was utilized to ascertain the degree of change following the staff education undertaking using a paired T-test to analyze the differences between the pretest and posttest data (Appendix F). For the purpose of this project, the significance level was set for a p-value of 0.05, with values equal to or less than this metric showing evidence against the null hypothesis and thus supporting the merit of providing staff education regarding MBCT as it relates to patients with chronic pain who also suffer from depressive symptoms. There were a total of 25 participants for this project (N=25) who completed the surveys and educational undertaking, with all surveys that were not fully completed or missing the proper four-digit pin being omitted from the final results.

The first question analyzed involved determining the staff member's understanding of the basic concepts involved with using MBCT. Pretest scores showed a mean value of 3.00 on a 1 to 5-point Likert scale with lower scores indicating a reduced understanding of for MBCT techniques and approaches to care and the corresponding posttest means value rising to 3.72 with a p-value of $< .001$ indicating a statistically significant improvement in survey scores following

the educational session being presented. The second survey question involved determining the staff member's degree of faith in using MBCT as a means for treating depression. The pretest mean score for this category was found to be 3.48 which was then raised to 4.04 after the staff education was given which then correlated to a p-value of .001 which indicates a statistically significant improvement when compared to the pretest mean score. Next the third question in this project involved specifically inquiring about staff member's belief that MBCT can actually reduce depressive symptoms. The mean value for the pretest score was found to be 3.64 with the posttest score then rising to 3.96 with the related p-value found to be .029 which also denotes a statistically significant improvement following the educational being provided to participants. The fourth survey question focused on each staff member's comfort with using or considering the use of MBCT in treating depression. The average mean score for the pretest was found to be 2.92 with the posttest value then increasing to 3.28 which translated into a p-value of .017 which also reflected a statistically significant improvement from pretest to posttest scores. Next the fifth survey question responses were analyzed which involved staff member's comfort with recommending MBCT to their specific patient populations. The mean value for the pretest was determined to be 3.00 with the posttest value rising up to 3.60 which also had a related p-value of .001 that indicated a statistically significant value. Finally, the sixth and last question on the survey was evaluated which focused on staff member's agreement that MBCT in an effective means for treating depressive symptoms when compared to more traditional antidepressant therapies. The mean value for the pretest was found to be 3.28 with the accompanying posttest mean value found to be 3.76 with a correlated p-value of .003 which again showed a statistically significant improvement between pretest and posttest scores. Collectively, the mean values of the

pretest and posttest data showed statistically significant improvement in all six different corresponding questions which supports the theory that palliative care staff members did indeed benefit from partaking in the education project that was presented by this writer.

Analysis with Bonferroni Correction

To minimize the risk of inflated significance by using multiple t-tests, a Bonferroni correction was also applied, which reduced the required p-value for significance. This step minimizes the risk for type 1 errors when analyzing multiple comparisons that are based upon one set of data collected. The revised p-value of <.01 still rendered significant differences in the comparison of pretest and posttest results on 4 of the 6 survey items, with questions 3 and 4 very close to significance, at .029 and .017, respectively.

Conclusion

Despite a myriad of advancements in modern healthcare practices, depression remains a serious concern that is worthy of discussion while alternative and adjunct methods that can help to address depressive symptoms amongst sufferers are scrutinized. As discussed in detail within this paper, depressive symptoms are more often manifested in individuals who also suffer from chronic pain, and palliative care patient populations are a unique and highly vulnerable population to suffering from both chronic pain and depression. Depression is also a key risk factor for patients engaging in unsafe medical practices of self-medicating, which includes the misuse and abuse of prescribed opioids which are commonly prescribed to patients with chronic pain under palliative care. Additionally, despite the benefits from using antidepressant therapies, this category of medications also come with a unique set of side effects that can negatively affect a patient's quality of life despite treating the underlying depressive symptoms. MBCT is an

evidenced-based approach specifically designed to treat depression and prevent depressive relapses while also improving the participant's overall mindfulness and assisting them with developing healthy coping techniques to deal with their depression. Furthermore, literature informs that MBCT is generally safe and can be used a primary or adjunct therapy for treating patients with depression while also not having the unwanted side effects often seen with traditional antidepressant therapies. This project illustrated how education regarding the use of MBCT can be beneficial for palliative care staff members to improve their understanding and acceptance of MBCT practices. In turn, this may serve to increase staff knowledge and may further promote the use of MBCT as a viable means for addressing depression for patients with chronic pain who are cared for under palliative care.

DISCUSSION

Overview

From the onset of this project, this writer theorized that the staff education provided would serve as a means for enlightening palliative care staff members which would then translate into higher posttest survey scores. When reviewing the statistical data extrapolated for this project, it is important to note that all p-values for the accompanying six questions included in the pretest and posttest surveys showed statistically significant improvements. Additionally, even with a Bonferroni correction, four out of the six survey responses still showed statistically significant changes from pretest mean scores compared to posttest mean scores, further substantiating the stance that the educational intervention was indeed effective at improving staff members' knowledge of MBCT as it pertains to treating depression. The first question in the project involved rating the participant's understanding of key concepts involved in the use of

MBCT as it relates to treating depression. The baseline mean scores from pretest rose from 3.00 to 3.72 with an accompanying p-value of < .001 which indicates that participants did indeed show improvements in their understanding of MBCT following the educational presentation. This could indicate a lack of participant's knowledge regarding the use of MBCT for treating depression prior to attending the presentation, which was then enhanced through the educational participants received. The second question involved gauging the participants level of understanding regarding the benefits of MBCT in the treatment of depression. The pretest mean score for this category was found to be 3.48 which was then rose to 4.04 after the staff education was given which then correlated to a p-value of .001 which indicates a statistically significant improvement in the participants' belief in viewing MBCT as a viable means for treating depression. Next, the third question in this project involved specifically inquiring about staff members' belief that MBCT can actually reduce depressive symptoms. The mean value for the pretest score was found to be 3.64 with the posttest score then rising to 3.96 with the related p-value found to be .029 which also denotes a statistically significant improvement following the educational being provided to participants. These findings support the stance that staff members' faith in MBCT as a viable means for reducing depressive symptoms was improved upon as a result of the educational session. The fourth survey question centered on participants' comfort with using or considering the use of MBCT in treating depression. The average mean score for the pretest was found to be 2.92 with the posttest value then increasing to 3.28 which translated into a p-value of .017 which reflected a statistically significant improvement in staff members' comfort and consideration for using MBCT to treat depression. These findings could support the stance that participants who received the supplemental education regarding MBCT felt more

comfortable in actually considering the use of MBCT as a viable treatment option for patients with depression. The fifth survey question responses were analyzed which involved staff members' comfort with recommending MBCT to their specific patient populations. The mean value for the pretest was determined to be 3.00 with the posttest value rising up to 3.60 which also had a related p-value of .001 that indicated a statistically significant value and supports the hypothesis that staff members' comfort with recommending MBCT strongly improved following the educational session. Finally, the sixth and last question on the survey was evaluated and this focused on staff member's agreement that MBCT is an effective means for treating depressive symptoms when compared to more traditional antidepressant therapies. The mean value for the pretest was found to be 3.28 with the accompanying posttest mean value increasing to 3.76 with a correlated p-value of .003 which again showed a statistically significant improvement between pretest and posttest scores supporting a positive outcome on staff members' belief in the effectiveness of MBCT when compared to traditional antidepressant therapies following staff receiving the previously mentioned education. Collectively, the mean values of the pretest and posttest data showed statistically significant improvement in all six different corresponding questions which supports the theory that palliative care staff members did indeed benefit from partaking in the education project that was presented by this writer.

Relevance to Frameworks, Aims and Current Literature

With regards to the previously discussed theoretical frameworks, the initial steps in Lewin's change theory and Melnyk's ARCC model, both of which involve acknowledging a specific problem exists, was accomplished by collaborating with the site's Medical Director and the agency's leadership team who did acknowledge a lack of knowledge regarding the use of

MBCT in treating depression, and this correspondence was made prior to this project being implemented. The second step in the Lewin's change theory involves changing current processes and demonstrating how other practices may have beneficial outcomes. This was partially accomplished by through the educational intervention with results indicating a positive outcome for participants who took part in the educational undertaking. This step could further be solidified should the agency actually use this quality improvement endeavor to change clinical practice. Furthermore, the aim of the project which involved improving palliative care staffs' knowledge regarding the use of MBCT for treating depression in palliative care patients who have chronic pain was met and the results of this project indicates that the education intervention was effective for enhancing participant's knowledge and acceptance of MBCT. Additionally, this writer did also peruse current literature for the purpose of comparing this project with other current evidence. This literature review showed that this project was unique with regard to the design and study question. In no other article found by this author did researchers aim to educate palliative care staff specifically regarding using MBCT for their patients who have depression and chronic pain. Therefore, this project did provide unique data that serves to inform the research community that valuable data could be gained through further exploration into this particular topic which would positively impact clinical practice, despite the fact that this project endeavor was not research-based in nature.

Strengths and Limitations of the Project

After reviewing the data collected, the first strength of the project becomes evident and this lies in the data which shows statistically significant improvements for all six questions, which demonstrates a positive outcome of the educational intervention as it pertains to the staff

members' improvement in knowledge regarding MBCT for treating depression. Additionally, the expected and observed outcomes for this project matched the previously hypothesized stance that palliative care staff would indeed benefit from the educational presentation, which was illustrated in the statistically significant improvement between pretest and posttest surveys. Furthermore, once the results were subjected to a Bonferroni correction, four out of the six survey items still showed statistically significant results, with survey items three and four still very close to significant values, which was also deemed a strength for this project. The final strength identified from this project was in the number of participants who completed both surveys and attended the education session. While 25 participants may be regarded as a relatively small sample size, this number represent about one-third of the entire agency's clinical staff which could also be argued as a strength.

Despite the outlined strengths, there are limitations of this project that are also worthy of discussion. This includes the lack of acquiring additional participant data, including age, gender and specific job roles, which could have been used to further analyze the data collected and determine unique variables that may have been evident. Furthermore, there was a relatively small sample size and, while purposefully done, all participants were from one palliative care setting, which decreases generalization of the results. However, the results were encouraging as the palliative care staff members appeared to gain knowledge and insight with regards to MBCT as it pertains to treating depression in patients with chronic pain and this was evidenced by the higher corresponding posttest scores.

Implications for Current and Future Practice

Given the improved metrics for all corresponding posttest results, this project could serve as a platform for the agency involved to conduct further research projects regarding MBCT for treating depression, or even potentially serve as a catalyst to promote positive changes to current guidelines and practices. This writer provided an executive summary of this project's findings and disseminated this information to the agency's Special Projects Coordinator. Additionally, several members of the leadership team who attended the meeting voiced their interest in further looking at possibly incorporating MBCT into current and future practice and stated their intent to look into options in the near future. Furthermore, the Special Projects Coordinator asked this writer for permission to use this material for potentially teaching and educating new staff regarding the use of MBCT for addressing depression among patients with chronic pain under palliative care services. This step could further serve to modify clinical practice if the agency uses the information gained from this project to change their clinical practice to include MBCT for addressing patients' depression, however, this would involve a separate quality improvement initiative outside of the scope for this specific project. Finally, this project could also be used as a catalyst for future research endeavors as the results of the data show a positive correlation between MBCT education and its effects on staff perceptions and beliefs regarding MBCT in treating depression.

APPENDIX A:

SYNTHESIS OF EVIDENCE

PICO Statement: "In palliative care staff working with patients who have chronic pain, does educating team members about the of using MBCT for treating depression versus not educating about the use of MBCT to treat depression, result in increased desire for palliative care staff to incorporate MBCT for treating depression among patients with chronic pain?"						
Author/ Article	**Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question**	**Theoretical framework**	**Design**	**Sample (N)**	**Data Collection (Instruments/ Tools)**	**Findings**
Aalderen,, Donders, A., Giommi, F., Spinhoven, P., Barendregt, H. & Speckens, A. The efficacy of mindfulness-based cognitive therapy in recurrent depressed patients with and without a current depressive episode: a randomized controlled trial.	A quantitative study to determine the effectiveness of using MBCT in conjunction with TAU for individuals with and without recurrent depression.	Not listed	Randomized controlled trial.	The total number of participants involved was N = 205 with 102 involved in the experimental group and 103 in the control group.	This study used the HAMD, BDI, the Rumination of Sadness Scale (RSS), the Penn State Worry Questionnaire (PSWQ), the Kentucky Inventory of Mindfulness (KIMS) and the World Health Organization Quality of Life Questionnaire (WHOQOL) tools to measure depressive symptoms and QOL indicators.	Patients who underwent MBCT in conjunction with TAU showed less depressive symptoms, worry and rumination and improved positive self-coping when compared to the TAU group. This study concluded that MBCT was safe as a treatment option for patients with and without recurrent depression when used with TAU.
Barrett, K, & Chang, Y. Behavioral interventions targeting chronic pain, depression, and substance use disorder in primary care.	Quantitative review that sought to compare the effectiveness of Mindfulness Oriented Recovery Enhancement (MORE), Acceptance and Commitment Therapy (ACT), Interpersonal Psychotherapy adapted for pain (ITP-P) and CBT for addressing chronic pain	Not listed	Systematic review	Six unique RCTs were included for this review with a total sample size of 696 individuals.	The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISM) guidelines were used to direct this review.	Mindfulness-based interventions showed significant positive effects in terms of managing chronic pain, substance abuse and underlying depression for patients treated in the primary care setting while enhancing positive self-coping skills.

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
	depression and substance abuse in the primary care setting.					
Hilton, L., Hempel, S., Ewing, B., Apaydin, E., Xenakis, L., Newberry, S., Colaiaco, B., Maher, A., Shanman, R., Sorbero, M. & Maglione, M. Mindfulness meditation for chronic pain: systematic review and meta-analysis.	Quantitative study that examined the effectiveness of MBCT and MBSR therapies in improving chronic pain, depression, QOL and impairment and disability.	Not listed	Systematic review and meta-analysis.	The review encompassed 38 unique RCTs that involved 3,536 total of participants.	Chronic pain was measured using the McGill Pain Questionnaire and the SF-36 scales, depression scores were measured using the Beck Depression Inventory and Patient Health Questionnaire, physical and mental (QOL) measured using the SF-36 scale and finally, functional impairment and disability was measured using the Roland-Morris Disability Questionnaire and the Sheehan Disability Scale.	Collectively, mindfulness therapies were effective at improving pain, depression and QOL metrics, however, it was noted that additional well-designed RCTs were needed to fully substantiate the benefits of mindfulness therapies for addressing chronic pain.

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
Huijibers, M., Spinhoven, P., Schaik, D., Nolen, W. & Speckens, A. Patients with a preference for medication do equally well in mindfulness-based cognitive therapy for recurrent depression as those preferring mindfulness.	Quantitative study that involved 2 parallel RCTs. This study sought to determine if patient preference for maintenance antidepressant medication (mADM) or MBCT would affect treatment adherence and effectiveness of interventions in preventing depressive relapses.	Not listed.	Two parallel RCTs. The first RCT compared MBCT to MBCT and mADM in patients who preferred mADM. The second RCT involved mADM to MBCT and mADM in patients who preferred mADM.	The first RCT included 249 participants and the second RCT had 68 for a total sample size of 317 individuals.	Treatment preference was measured using the Treatment Credibility Questionnaire (TCQ). Depressive relapse was measured using the Structured Clinical Interview while depressive symptoms and QOL were measured with the Inventory of Depressive Symptomology tool.	Adherence to MBCT treatment was not changed based upon treatment preference and no significant differences in rates of depressive relapse, severity of symptoms or effects on QOL were noted between the two preference groups.
Kuyken, W., Hayes, R., Barrett, B., Byng, R., Dalgleish, T., Kessler, D., Lewis, G., Watkins, E., Brejcha, C., Cardy, J., Causley, A., Cowderoy, S., Evans, A., Gradinger, F.,	Quantitative analysis. Research question: Is MBCT with intent to taper to discontinue antidepressant therapy more effective at preventing relapses in depressive episodes versus	None Listed.	Single-blind parallel randomized controlled trial.	212 patients were assigned to the experimental group involving MBCT and 212 were the control group utilizing TAU in the form of continued antidepressant therapy, with N=424.	Relapse in depression was measured using the Structured Clinical Interview from the DSM-IV (SCID) tool as the primary outcome that was measured. Residual depressive manifestations were measured using the GRID-Hamilton Rating	While not superior to TAU with antidepressant therapy, MBCT was similar in terms of preventing relapses in depression, reducing depressive symptoms and

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
Kaur, S., Lanham, P., Morant, N., Richards, J., Shah, P., Sutton, H., Vicary, R., Weaver, A., Wilks, J.,Williams, M., Taylor, R. & Byford, S. Effectiveness and cost-effectiveness of mindfulness-based cognitive therapy compared with maintenance antidepressant treatment in the prevention of depressive relapse or recurrence (PREVENT): A randomized controlled trial.	TAU with antidepressant therapy?				Scale for Depression (HAMD) and the 21-item Beck Depression Inventory (BDI), while QOL was measured using the WHO Quality of Life Instrument.	improving QOL scores.

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
Lenz, A. & Hall, J. Meta-analysis of group mindfulness-based cognitive therapy for decreasing symptoms of acute depression.	Quantitative study with three specific research questions were asked: 1) How effective is MBCT in addressing depressive symptoms versus no treatment or alternative treatments? 2) How do study designs and participant traits impact effects of MBCT? and 3) How effective is MBCT when scrutinized at specific follow-up intervals?	Not listed	Meta-analysis.	31 unique studies were selected for inclusion with a total sample size of 2,352 individuals.	Mean differences in variance was determined using the Hedge's g tool. To analyze homogeneity, the Cochran's Q tool was utilized. Predictive relationships including age, gender and Country was computed by the Knapp and Hartung procedure.	MBCT was demonstrated to be superior at managing depressive symptoms when compared to no treatment or alternative treatments. No significant differences between age or sex were noted with studies included in this meta-analysis with minimal homogeneity attributed to country of origin and type of treatment in which MBCT therapy was compared to. MBCT effects were also found to potentially enhance over time.

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
Lestoquoy, A., Laird, L., Mitchell, S., Gergen-Barnett, Negash, N., McCue, K., Enad, R. & Gardiner, P. Living with chronic pain: Evaluating patient experiences with a medical group visit focused on mindfulness and non-tautological strategies.	Qualitative study that sought to answer the following question: How will patients with chronic pain and depression who are of racially diverse and low-income backgrounds react to mindfulness therapies and what will their experiences yield?	Modified grounded theory.	Using the modified grounded theory, specific themes were identified based upon the participant's experience following group sessions.	20 total participants from low-economic status with diverse racial backgrounds.	To qualify for the study, participants had to have numeric pain scores of 4 or greater out of 10 and depression of 5 or greater out of 10 on the Patient Health Questionnaire with all transcripts of the focus group coded using the NVivo 10 software.	Six unique themes were identified: 1) Living with chronic pain was isolating, 2) group therapy enhanced ability to cope with pain, 3) pain exacerbations were unpredictable and dependence on medication and follow-up appointments resulted in feelings of lack of autonomy and control, 4) group therapies improve control over individuals' health, 5) navigating the healthcare system and treatment options are often unsatisfying and 6) non-medication therapies taught led to new coping techniques.

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
Lilja, J., Zelleroth, C., Axberg, U. & Norlander, T. Mindfulness-based cognitive therapy is effective as relapse prevention for patients with recurrent depression in Scandinavian primary health care.	Quantitative study that examined the following questions: 1) Can MBCT be used to prevent depression in primary care? 2) Are their gender-specific differences in outcomes? 3) Does motivation and therapeutic association affect outcomes? 4) What are the statistically significant differences in terms of outcomes?	Not listed.	Quasi-experimental pre and posttest comparing MBCT treatment group with TAU group in patients diagnosed with recurrent depression.	This study used a total sample size of N = 45.	The Five Facets of Mindfulness Questionnaire (FFMQ), the Hospital Anxiety and Depression Scale (HADS), the Life Satisfaction Questionnaire (LSQ), Working Alliance Inventory, Nijmegen Motivation List for Prevention (NML2) and the Primary Care Evaluation of Mental Disorders (Prime-MD) were used to measure depression, anxiety and QOL both pre and posttest.	Two-thirds of participants showed improvements in depression and anxiety with a decreased relapse rate for patients who underwent MBCT.
Mehl-Madrona, L., Mainguy, B. & Plummer, J. Integration of complementary and alternative medicine therapies into primary-care pain management	Quantitative study that sought to answer whether complementary and alternative medicine (CAM) approaches (that included mindfulness interventions)	Not listed.	Quality improvement project.	207 patients were enrolled in the experimental group who received CAM therapies and 207 patients received TAU for the control with N=414.	A numeric pain scale rating between 0-10 was used to measure pain levels, while the My Medical Outcome Profile 2nd version was used to measure QOL scores.	Statistically significant improvements in pain and QOL scores were noted in patients who underwent CAM therapies that included mindfulness

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
for opiate reduction in a rural setting.	could assist with reducing pain intensity and dependence on opioid analgesics while improving QOL metrics.					exercises. Additionally, 17 patients reduced their opioid doses and seven patients completed stopped requiring opioid therapy altogether.
Mikolasek, M., Berg, J., Witt, C. & Barth, J. Effectiveness of mindfulness relaxation-based eHealth interventions for patients with medical conditions: A systematic review and synthesis.	Quantitative analysis to review studies that utilized either mindfulness-based stress reduction (MBSR) therapies or MBCT therapies. The research question was, "Do eHealth MBSR and MBCT approaches improve a patient's physical and psychological health?"	None listed.	Systematic review with synthesis.	This review encompassed 17 unique articles with a collective sample size of 1,855 patients.	Inclusion criteria included pre and posttest results for physical or psychological outcomes. Studies were between 1990 to 2015 collected from five different databases. To validate external validity, the Downs and Black checklist was utilized.	Out of the 17 unique studies included, four studies focused specifically on depression with patients who underwent eHealth mindfulness therapy showing superior control of depressive symptoms in one study and equal efficacy when compared to TAU in the other three studies.

Author/ Article	Qual: Concepts or phenomena Quant: Key variables Hypothesis and research question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/ Tools)	Findings
Shawyer, F., Enticott, J., Ozmen, M., Inder, B. & Meadows, G. Mindfulness-based cognitive therapy for recurrent major depression: A 'best buy' for health care?	Quantitative research with a research question of "How beneficial and cost effective is MBCT for reducing depressive relapses in patients with a history of recurrent major depressive episodes (MDEs)"	None listed.	Randomized-controlled trial consisting of experimental group who underwent MBCT plus depressive relapse monitoring and a control group who only had depressive relapse monitoring.	The experimental group consisted of 101 patients and a control group of 102 patients with 203 total participants.	The Depression Awareness and Study design was used with depression relapse and monitoring (DRAM) tool to measure total MDEs over the course of 26 months. To estimate clinical delivery costs, the Medicare Benefit Schedule (MBS) was utilized.	Patients who underwent MBCT consistently showed lower MDEs when compared with the control group. Also, the clear majority of 9 subgroups showed cost-savings for those who underwent MBCT with the exception of just one group.
Zgierska, E., Burzinski, C., Cox, J., Kloke, J., Stegner, A., Cook, D., Singles, J., Mirgain, S., Coe, C. & Bačkonja, M. Mindfulness meditation and cognitive behavioral therapy intervention reduces pain severity and sensitivity in opioid-treated chronic low back pain: Pilot findings from a randomized controlled trial.	Quantitative study that looked at the MBCT as it relates to mitigating chronic lower back pain (CLBP), disability and dysfunction, thermal pain perception, pain acceptance and opioid usage.	Not listed	Randomized controlled trial.	21 participants were enrolled into the experimental group with 14 placed in the control group with N=35.	Pain scoring was done using a numeric pain scale rating between 0-10, disability was measured using the Oswestry Disability Index, a Thermal Sensory Analyzer was used to measure thermal pain perceptions, the 20-Item Chronic Pain Acceptance Questionnaire and self-reported opioid usage (both by prescription and by illicit use).	MBCT showed statistically significant improvements in pain severity and thermal pain perception. Additionally, MBCT was determined to be safe when used in an adjunct fashion to long-term opioid therapy in patients with CLBP.

APPENDIX B:

MINDFULNESS-BASED COGNITIVE THERAPY QUESTIONNAIRE

MINDFULNESS-BASED COGNITIVE THERAPY QUESTIONNAIRE					
To what degree do you agree with the following statements?	**Strongly Disagree (1)**	**Disagree (2)**	**Neither Agree nor Disagree (3)**	**Agree (4)**	**Strongly Agree (5)**
I understand key concepts of mindfulness-based cognitive therapy (MBCT).					
I recognize the benefits of using MBCT in the treatment of depression.					
I believe MBCT can help reduce depressive episodes.					
My current practice uses or considers using MBCT for addressing depression.					
I feel comfortable in recommending treatments like MBCT.					
I believe MBCT is effective when compared to traditional antidepressant therapies.					

APPENDIX C:

SITE APPROVAL LETTER

HOSPICE of the VALLEY

October 17, 2018

Angela Brown, DNP, RN, FNP-BC, CDE
DNP Project Director
College of Nursing, Graduate College
University of Arizona

Dear Dr. Brown,

After reviewing the proposed study, *Educating Palliative Care Staff Increases Utilization of Mindfulness Based Cognitive Therapy to Manage Depression in Palliative Care Patients with Chronic Pain,* presented by Christopher Michael Harper, I have granted authorization for Mr. Harper to conduct this research at Hospice of the Valley.

I understand that the purpose of the study is to inform palliative care team members about the benefits of using Mindfulness Based Cognitive Therapy (MBCT) to reduce symptoms of depression in patients on palliative care who have a diagnosis of chronic pain. Enhancing education about the benefits of MBCT will serve to reduce the risks for opioid misuse and or abuse in palliative care patients with chronic pain concerns.

In the course of this study, Mr. Harper will follow a quality improvement design, administering a pretest and posttest survey to gauge their understanding of the benefits and basic principles associated with the utilization of MBCT in the treatment of depression in chronic pain. In the interval between these surveys, Mr. Harper will provide education to the palliative care staff about the tangible benefits of utilizing MBCT in the treatment of depression in patients with chronic pain who are also receiving opioid analgesic therapies. Study participation is voluntary and the anonymity of survey responses will be protected.

To ensure that the study participants are protected, Mr. Harper has agreed to provide me with a copy of the any University of Arizona IRB-approved consent document and approval letter(s) before he recruits participants at Hospice of the Valley. Mr. Harper has agreed to provide a copy of the study results, in aggregate, to our organization.

With this letter, Hospice of the Valley is providing enthusiastic support for Mr. Christopher Harper and his proposed research. Please direct any questions to me at your convenience.

Sincerely

Joyce Bulman

Joyce Bulman
Vice President of Clinical Operations
Hospice of the Valley

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A not-for-profit organization

APPENDIX D:

THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL LETTER

THE UNIVERSITY OF ARIZONA
Research, Discovery & Innovation

Human Subjects Protection Program

1618 E. Helen St.
P.O.Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
http://rgw.arizona.edu/compliance/home

Date:	November 14, 2018
Principal Investigator:	Christopher Michael Harper
Protocol Number:	1811091269
Protocol Title:	Educating Palliative Care Staff Increases Utilization of Mindfulness-Based Cognitive Therapy to Manage Depression in Palliative Care Patients with Chronic Pain
Determination:	Human Subjects Review not Required

Documents Reviewed Concurrently:

HSPP Forms/Correspondence: *CHdetermination_2-3_v2018_1Determination of Human Research.pdf*
HSPP Forms/Correspondence: *Re IRB 1811091269 Christopher Harper Determination PR.msg*

Regulatory Determinations/Comments:

- Not Research as defined by 45 CFR 46.102(d): As presented, the activities described above do not meet the definition of research cited in the regulations issued by U.S. Department of Health and Human Services which state that "research means a systematic investigation, including research development, testing and evaluation, designed to contribute to generalizable knowledge."

The project listed above does not require oversight by the University of Arizona.

If the nature of the project changes, submit a new determination form to the Human Subjects Protection Program (HSPP) for reassessment. Changes include addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the study activity. Please contact the HSPP to consult on whether the proposed changes need further review.

The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

APPENDIX E:

POWERPOINT PRESENTATION SLIDES

Using MBCT to Address Depression in Palliative Care Patients with Chronic Pain

Christopher M. Harper, BSN, RN, DNP-FNP Student

THE UNIVERSITY OF ARIZONA College of Nursing

OVERVIEW

- Chronic Pain & Opioid Use in Palliative Care
- Relationship Between Depression & Chronic Pain
- Depression Treatment as Usual (TAU) Drawbacks
- Benefits of MBCT & Supporting Evidence

CHRONIC PAIN IN PALLIATIVE PATIENTS

- Chronic pain definition
- Prevalence of chronic pain
- Etiological considerations

OPIOIDS FOR CHRONIC PAIN

- Opioids & palliative care patients
- Risks of misuse & abuse
- Limitations of opioids

DEPRESSION AND CHRONIC PAIN

- **Relationship between depression & chronic pain**
- **Comorbid depression & chronic pain in palliative care patients**

RISKS OF CONCURRENT DIAGNOSES

- **Increased risk of opioid misuse & abuse with or without prior abuse history.**

RISKS OF DEPRESSION USUAL TREATMENT

- Occurrence of unwanted side effects
- High healthcare costs
- Potential premature discontinuation

MBCT VERSUS DEPRESSION TAU

- MBCT has advantages over antidepressants
- Equivalent results

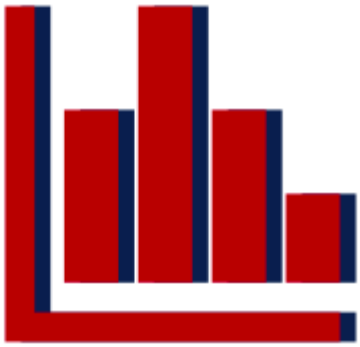
MINFULNESS-BASED COGNITIVE THERAPY

9

MINFULNESS-BASED COGNITIVE THERAPY

10

LITERATURE SUPPORTING MBCT

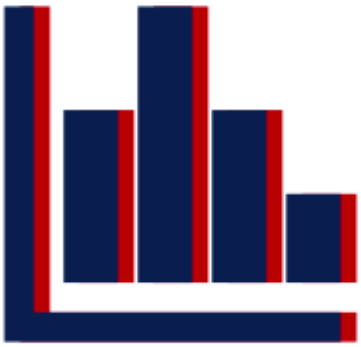


MBCT improves depressive symptoms in patients with chronic pain.

11

LITERATURE SUPPORTING MBCT

MBCT also manages concurrent depression & chronic pain



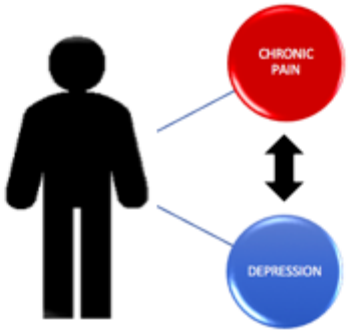
12

LIMITATIONS & DRAWBACKS OF MBCT

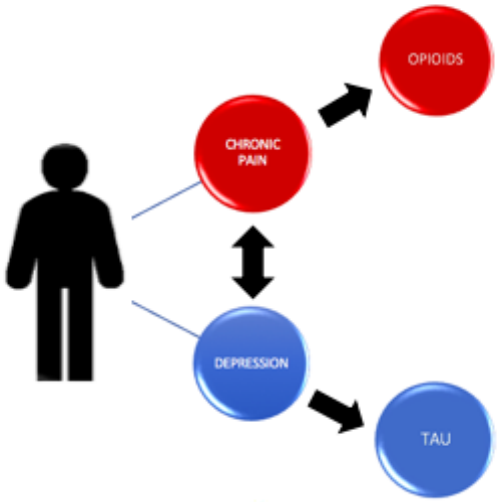
SUMMARY

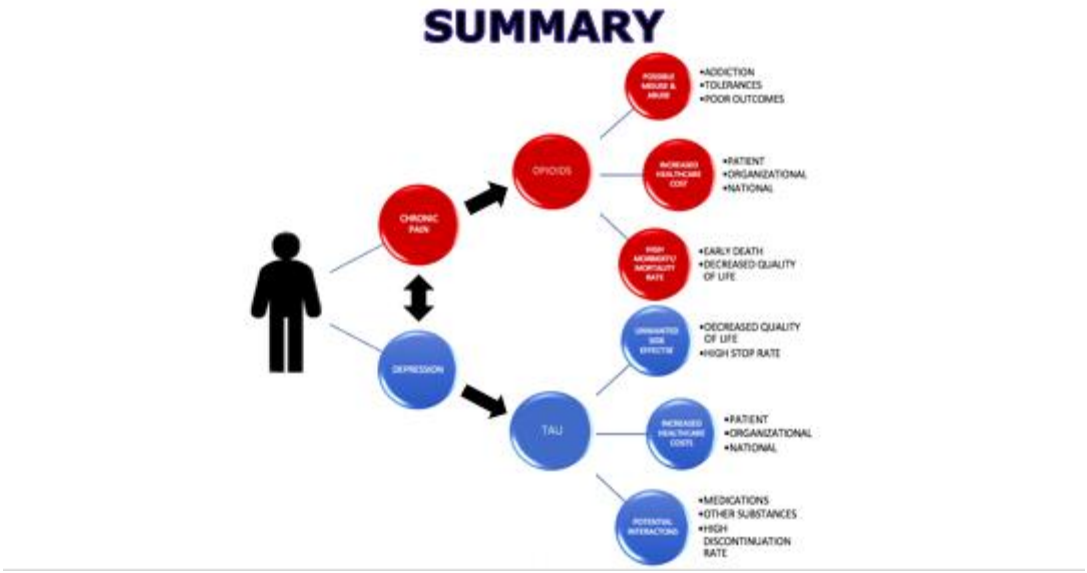
PALLIATIVE CARE PATIENT

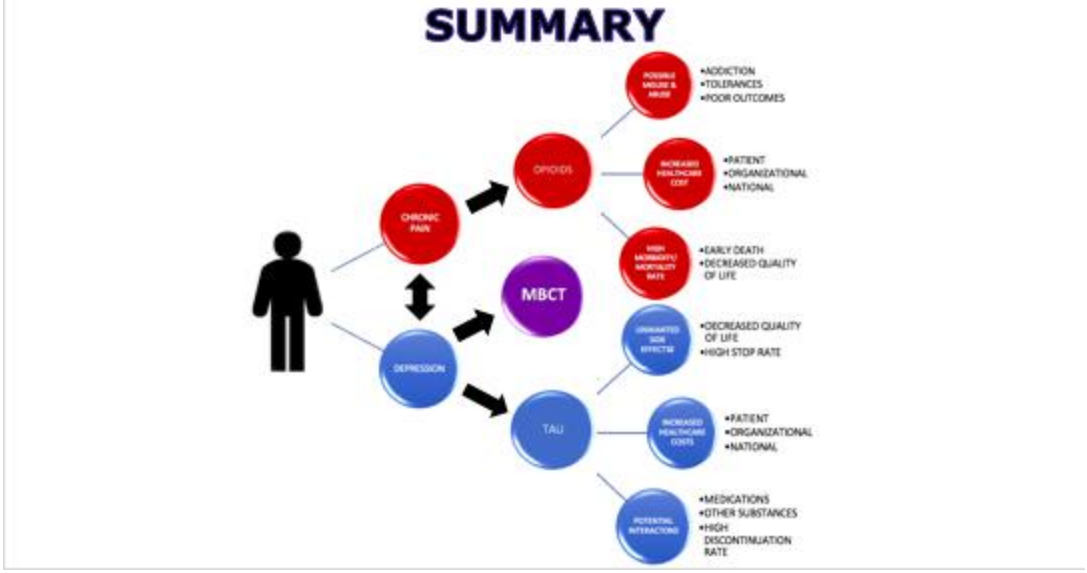
SUMMARY



SUMMARY




SUMMARY
•ADDICTION
•TOLERANCES
•POOR OUTCOMES
OPIOIDS
•PATIENT
•ORGANIZATIONAL
•NATIONAL
CHRONIC PAIN
•EARLY DEATH
•DECREASED QUALITY OF LIFE
•DECREASED QUALITY OF LIFE
•HIGH STOP RATE
DEPRESSION
TAU
•PATIENT
•ORGANIZATIONAL
•NATIONAL
•MEDICATIONS
•OTHER SUBSTANCES
•HIGH DISCONTINUATION RATE


SUMMARY
•ADDICTION
•TOLERANCES
•POOR OUTCOMES
OPIOIDS
•PATIENT
•ORGANIZATIONAL
•NATIONAL
CHRONIC PAIN
MBCT
•EARLY DEATH
•DECREASED QUALITY OF LIFE
•DECREASED QUALITY OF LIFE
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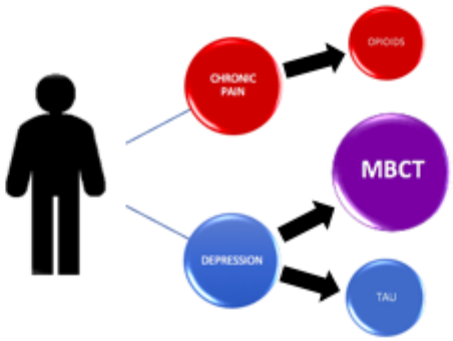
DEPRESSION
TAU
•PATIENT
•ORGANIZATIONAL
•NATIONAL
•MEDICATIONS
•OTHER SUBSTANCES
•HIGH DISCONTINUATION RATE

SUMMARY



THANK YOU!

APPENDIX F:

SPSS PAIRED T-TEST DATA ANALYSIS

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	3.00	25	1.041	.208
	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	3.72	25	.843	.169
Pair 2	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	3.48	25	1.046	.209
	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	4.04	25	.841	.168

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	3.00	25	1.041	.208
	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	3.72	25	.843	.169
Pair 2	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	3.48	25	1.046	.209
	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	4.04	25	.841	.168

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 3	To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes.	3.64	25	.995	.199
	To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes.	3.96	25	.790	.158
Pair 4	To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression.	2.92	25	1.077	.215
	To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression.	3.28	25	1.137	.227
Pair 5	To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT.	3.00	25	1.041	.208
	To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT.	3.60	25	1.000	.200
Pair 6	To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies.	3.28	25	.891	.178
	To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies.	3.76	25	.723	.145

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT). & To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	25	.713	.000
Pair 2	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression. & To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	25	.688	.000
Pair 3	To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes. & To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes.	25	.723	.000
Pair 4	To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression. & To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression.	25	.801	.000

Paired Samples Correlations

		N	Correlation	Sig.
Pair 5	To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT. & To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT.	25	.721	.000
Pair 6	To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies. & To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies.	25	.626	.001

Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence ... Lower
Pair 1	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT). - To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	-.720	.737	.147	-1.024
Pair 2	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression. - To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	-.560	.768	.154	-.877
Pair 3	To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes. - To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes.	-.320	.690	.138	-.605

Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence ... Lower
Pair 4	To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression. - To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression.	-.360	.700	.140	-.649
Pair 5	To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT. - To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT.	-.600	.764	.153	-.915
Pair 6	To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies. - To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies.	-.480	.714	.143	-.775

Paired Samples Test

		Paired ... 95% Confidence Interval of the ... Upper	t	df	Sig. (2-tailed)
Pair 1	To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT). - To what degree do you agree with the following statements: - I understand key concepts of mindfulness-based cognitive therapy (MBCT).	-.416	-4.884	24	.000
Pair 2	To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression. - To what degree do you agree with the following statements: - I recognize the benefits of using MBCT in the treatment of depression.	-.243	-3.645	24	.001
Pair 3	To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes. - To what degree do you agree with the following statements: - I believe MBCT can help reduce depressive episodes.	-.035	-2.317	24	.029

Paired Samples Test

		Paired ... 95% Confidence Interval of the ... Upper	t	df	Sig. (2-tailed)
Pair 4	To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression. - To what degree do you agree with the following statements: - My current practice uses or considers using MBCT for addressing depression.	-.071	-2.571	24	.017
Pair 5	To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT. - To what degree do you agree with the following statements: - I feel comfortable in recommending treatments like MBCT.	-.285	-3.928	24	.001
Pair 6	To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies. - To what degree do you agree with the following statements: - I believe MBCT is effective when compared to traditional antidepressant therapies.	-.185	-3.361	24	.003

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